

Department of Energy

§ 431.136

§ 431.134 Uniform test methods for the measurement of energy and water consumption of automatic commercial ice makers.

(a) *Scope.* This section provides the test procedures for measuring, pursuant to EPCA, the energy use in kilowatt hours per 100 pounds of ice (kWh/100 lb ice) and the condenser water use in gallons per 100 pounds of ice (gal/100 lb ice) of automatic commercial ice makers with capacities between 50 and 4,000 pounds of ice per 24 hours.

(b) *Testing and Calculations.* Measure the energy use and the condenser water use of each covered product by conducting the test procedures set forth in AHRI 810, section 3, “Definitions,” section 4, “Test Requirements,” and section 5, “Rating Requirements” (incorporated by reference, see § 431.133). Where AHRI 810 references “ASHRAE

Standard 29,” ANSI/ASHRAE Standard 29–2009 (incorporated by reference, see § 431.133) shall be used. All references to cube type ice makers in AHRI 810 apply to all batch type automatic commercial ice makers.

(1) For batch type automatic commercial ice makers, the energy use and condenser water use will be reported as measured in this paragraph (b), including the energy and water consumption, as applicable, of the ice-making mechanism, the compressor, and the condenser or condensing unit.

(2)(i) For continuous type automatic commercial ice makers, determine the energy use and condenser water use by multiplying the energy consumption or condenser water use as measured in this paragraph (b) by the ice hardness adjustment factor, determined using the following equation:

$$\text{Ice Hardness Adjustment Factor} = \left[\frac{144 \text{ Btu/lb} + 38 \text{ Btu/lb}}{144 \text{ Btu/lb} \times (\text{Ice Hardness Factor}/100) + 38 \text{ Btu/lb}} \right]$$

(ii) Determine the ice hardness factor by following the procedure specified in the “Procedure for Determining Ice Quality” in section A.3 of normative annex A of ANSI/ASHRAE 29 (incorporated by reference, see § 431.133), except that the test shall be conducted at an ambient air temperature of 70 °F ±1 °F, with an initial water temperature of 90 °F ±1 °F, and weights shall be accurate to within ±2 percent of the quantity measured. The ice hardness factor is equivalent to the corrected net cooling effect per pound of ice, line 19 in ANSI/ASHRAE 29 Table A1, where the calorimeter constant used in line 18

shall be that determined in section A2 using seasoned, block ice.

[77 FR 1613, Jan. 11, 2012]

ENERGY CONSERVATION STANDARDS

§ 431.136 Energy conservation standards and their effective dates.

Each automatic commercial ice maker that produces cube type ice with capacities between 50 and 2500 pounds per 24-hour period when tested according to the test standard established in accordance with section 343 of EPCA (42 U.S.C. 6314) and is manufactured on or after January 1, 2010, shall meet the following standard levels:

| Equipment type | Type of cooling | Harvest rate (lbs ice/24 hours) | Maximum energy use (kWh/100 lbs ice) | Maximum condenser water use * (gal/100 lbs ice) |
|---|-----------------|---------------------------------|--------------------------------------|---|
| Ice Making Head | Water ... | <500 | 7.80–0.0055H | 200–0.022H. |
| Ice Making Head | Water ... | ≥500 and <1436 .. | 5.58–0.0011H | 200–0.022H. |
| Ice Making Head | Water ... | ≥1436 | 4.0 | 200–0.022H. |
| Ice Making Head | Air | <450 | 10.26–0.0086H ... | Not applicable. |
| Ice Making Head | Air | ≥450 | 6.89–0.0011H | Not applicable. |
| Remote Condensing (but not remote compressor) ... | Air | <1000 | 8.85–0.0038H | Not applicable. |
| Remote Condensing (but not remote compressor) ... | Air | ≥1000 | 5.1 | Not applicable. |
| Remote Condensing and Remote Compressor | Air | <934 | 8.85–0.0038H | Not applicable. |
| Remote Condensing and Remote Compressor | Air | ≥934 | 5.3 | Not applicable. |
| Self Contained | Water ... | <200 | 11.40–0.019H ... | 191–0.0315H. |

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| Equipment type | Type of cooling | Harvest rate (lbs ice/24 hours) | Maximum energy use (kWh/100 lbs ice) | Maximum condenser water use* (gal/100 lbs ice) |
|----------------------|-----------------|---------------------------------|--------------------------------------|--|
| Self Contained | Water ... | ≥200 | 7.6 | 191–0.0315H. |
| Self Contained | Air | <175 | 18.0–0.0469H | Not applicable. |
| Self Contained | Air | ≥175 | 9.8 | Not applicable. |

H Harvest rate in pounds per 24 hours.

* Water use is for the condenser only and does not include potable water used to make ice.

[70 FR 60415, Oct. 18, 2005; 70 FR 61698, Oct. 25, 2005]

Subpart I—Commercial Clothes Washers

TEST PROCEDURES

§ 431.154 Test procedures.

The test procedures for residential clothes washers in appendix J1 to subpart B of part 430 of this title shall be used to test commercial clothes washers.

ENERGY CONSERVATION STANDARDS

§ 431.156 Energy and water conservation standards and effective dates.

(a) Each commercial clothes washer manufactured between January 1, 2007, and January 8, 2013, shall have—

(1) A modified energy factor of at least 1.26; and

(2) A water consumption factor of not more than 9.5.

(b) Each commercial clothes washer manufactured on or after January 8, 2013, shall have a modified energy factor no less than and a water factor no greater than:

| Equipment class | Modified energy factor, cu. ft./kWh/cycle | Water factor, gal./cu. ft./cycle |
|---------------------|---|----------------------------------|
| Top-Loading | 1.60 | 8.5 |
| Front-Loading | 2.00 | 5.5 |

[76 FR 69123, Nov. 8, 2011]

Subpart J [Reserved]

§§ 431.171–431.176 [Reserved]

Subpart K—Distribution Transformers

SOURCE: 70 FR 60416, Oct. 18, 2005, unless otherwise noted.

§ 431.191 Purpose and scope.

This subpart contains energy conservation requirements for distribution

SOURCE: 70 FR 60416, Oct. 18, 2005, unless otherwise noted.

§ 431.151 Purpose and scope.

This subpart contains energy conservation requirements for commercial clothes washers, pursuant to Part C of Title III of the Energy Policy and Conservation Act, as amended, 42 U.S.C. 6311–6317.

§ 431.152 Definitions concerning commercial clothes washers.

Basic model means all units of a given type of covered product (or class thereof) manufactured by one manufacturer, having the same primary energy source, and which have essentially identical electrical, physical, and functional (or hydraulic) characteristics that affect energy consumption, energy efficiency, water consumption, or water efficiency.

Commercial clothes washer means a soft-mounted front-loading or soft-mounted top-loading clothes washer that—

(1) Has a clothes container compartment that—

(i) For horizontal-axis clothes washers, is not more than 3.5 cubic feet; and

(ii) For vertical-axis clothes washers, is not more than 4.0 cubic feet; and

(2) Is designed for use in—

(i) Applications in which the occupants of more than one household will be using the clothes washer, such as multi-family housing common areas and coin laundries; or

(ii) Other commercial applications.

[70 FR 60416, Oct. 18, 2005, as amended at 76 FR 12504, Mar. 7, 2011]